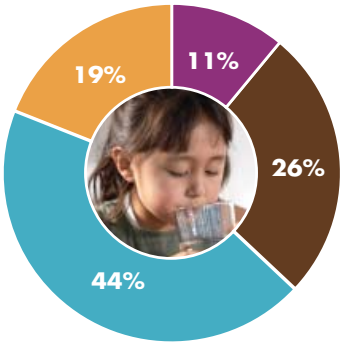
Groundwater Quality Summary Report

For Testing Performed in Calendar Year 2016

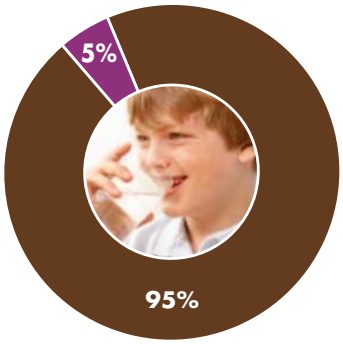
Santa Clara Valley Water District

Protecting our Groundwater

NORTH COUNTY WATER USE



SOUTH COUNTY WATER USE



- Groundwater
- Treated Water
- Hetch-Hetchy
- Other Local and Recycled Water

Groundwater is an essential local resource, providing about half of the water used in Santa Clara County each year. In some areas, groundwater is the only source of drinking water. Protecting our groundwater helps ensure adequate supplies are available now and in the future.

The Santa Clara Valley Water District works to safeguard groundwater by:

- Replenishing groundwater with local and imported surface water.
- Reducing demands on groundwater through treated water deliveries, water conservation and water recycling.
- Monitoring groundwater and implementing programs to protect against contamination.

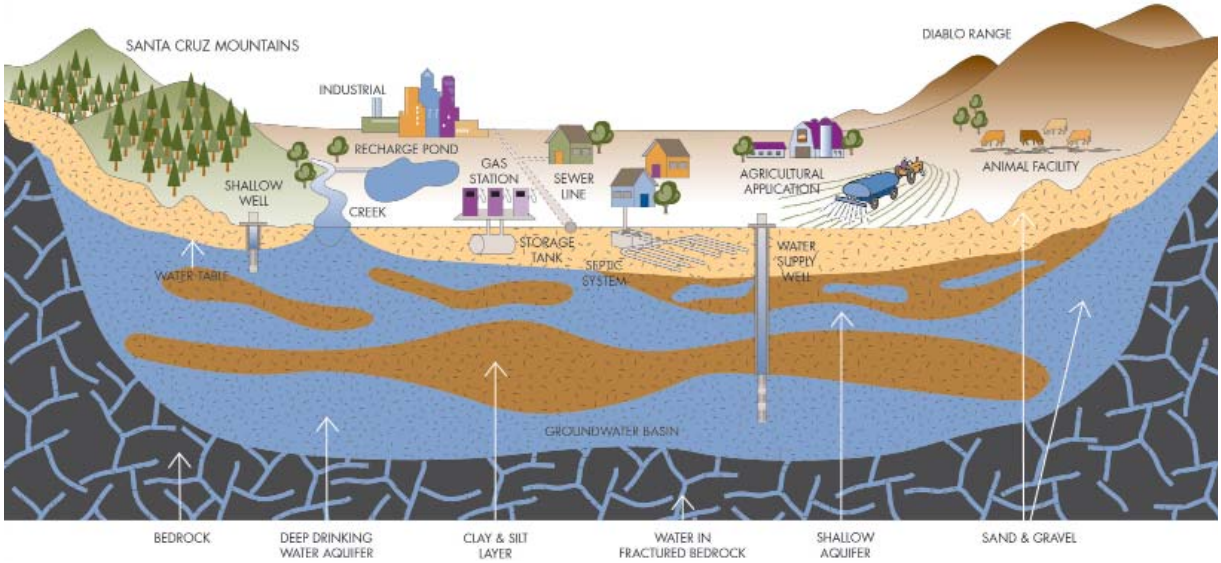
Regular well testing throughout the county indicates that groundwater quality is generally very good. Drinking water, including bottled water, may contain at least small amounts of some contaminants. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive materials, and can pick up substances from animal and human activities.

Contaminants that may be present include:

- Microbial contaminants such as viruses and bacteria that may come from sewage treatment plants, sewer lines, septic systems, agricultural operations and wildlife.
- Inorganic contaminants such as salts and metals that can be naturally occurring or result from stormwater runoff, industrial or domestic wastewater discharges, animal facilities, farming, and mining.
- Pesticides, fertilizers and herbicides that may come from agriculture, stormwater runoff and residential uses.
- Organic chemicals including synthetic and volatile organic chemicals from industrial processes, gas stations, dry cleaners, stormwater runoff, agricultural application and septic systems.
- Radioactive contaminants that are typically naturally occurring in our area.

The presence of natural or man-made contaminants does not necessarily indicate that water poses a health risk. State and federal drinking water standards identify maximum contaminant levels that relate to health risk.

Everyone has a role in protecting groundwater. Well owners should maintain their wells and septic systems, and create a zone of protection around the well where no contaminants are used or stored. See the water district's Guide for the Private Well Owner at **www.valleywater.org** for helpful tips. Residents can help by conserving water and by raising awareness that activities on the land surface can affect our largest drinking water reservoir, which is beneath our feet.



2016 Groundwater Quality Summary

Monitoring confirms generally high groundwater quality, but South County nitrate is a concern

In 2016, the water district sampled nearly 250 domestic water supply wells and evaluated data from over 230 local water supplier wells. The table below summarizes groundwater quality results for North and South County (see map on back page). 2016 results show that nearly all wells tested meet drinking water standards with the notable exception of nitrate in South County domestic wells. The water district works with regulatory and land use agencies on this ongoing groundwater protection challenge.

Water from public water systems must meet Maximum Contaminant Levels (MCLs), but domestic wells are not subject to these standards. It should be noted that not every well was tested for all parameters shown, and only parameters that were detected in water supply wells are listed. Water quality standards, including MCLs, are shown to provide context for quality in your well since every property and well is unique.

Primary Drinking Water Standards — Public Health Related Standards				North County		South County		
Inorganic Contaminants	UNITS	PRIMARY MCL	PHG	MEDIAN	RANGE	MEDIAN	RANGE	Typical Sources
Aluminum	ppb	1,000	600	ND	ND - 260	23.5	ND - 430	Erosion of natural deposits
Arsenic	ppb	10	0.004	ND	ND - 5.70	ND	ND - 4.00	Erosion of natural deposits; glass and electronics production waste
Asbestos	MFL	7	7	ND	ND	ND	ND - 2.30	Erosion of natural deposits
Barium	ppb	1,000	2,000	115	ND - 280	85.2	ND - 310	Erosion of natural deposits
Chromium (total)	ppb	50	—	ND	ND - 10.3	1.30	ND - 4.50	Erosion of natural deposits; metal plating
Chromium-6 (hexavalent)	ppb	10	0.02	2.00	ND - 5.80	1.20	ND - 5.20	Erosion of natural deposits; metal plating and industrial discharges
Fluoride (natural source)	ppm	2	1	0.13	ND - 0.23	0.1	ND - 1.53	Erosion of natural deposits
Nickel	ppb	100	12	2.30	ND - 16.0	ND	ND - 6.30	Erosion of natural deposits; discharge from metal industries
Nitrate + Nitrite (as N)	ppm	10,000	10,000	2.95	0.64 - 7.10	2.60	ND - 5.80	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrite (as N)	ppm	10	10	3.20	ND - 12.5	5.00	ND - 46.4	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Perchlorate	ppb	6	6	ND	ND	ND	ND - 4.60	Solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries
Selenium	ppb	50	30	ND	ND - 6.30	ND	ND	Erosion of natural deposits
Radioactive Contaminants								
Gross Alpha	pCi/L	15	—	1.10	ND - 4.60	ND	ND - 6.01	Erosion of natural deposits
Gross Beta	mrem/yr	50	—	ND	ND	0.12	0.12	Erosion of natural deposits
Tritium	pCi/L	20,000	400	NA	NA	305	305	Erosion of natural deposits
Uranium	pCi/L	20	0.43	ND	ND - 0.80	NA	NA	Erosion of natural deposits
Volatile Organic Chemicals								
1,1,1-Trichloroethane (1,1,1-TCA)	ppb	200	1,000	ND	ND - 1.70	ND	ND	Discharge from metal degreasing sites and other industrial processes
1,2,2-Trichloro-1,2,2-Trifluoroethame (Freon 113)	ppb	1,200	4,000	ND	ND - 12.0	ND	ND	Discharge from industrial processes and automotive repair
1,1 - Dichloroethylene (1,1- DCE)	ppb	6	10	ND	ND - 0.86	ND	ND	Discharge from industrial processes, dry cleaners, and automotive repair
Haloacetic acids (HAA5)	ppb	60	0	7.25	ND - 13.5	NA	NA	Drinking water chlorination
Styrene	ppb	100	0	ND	ND - 0.69	ND	ND	Discharge from industrial processes
Tetrachloroethene (PCE)	ppb	5	0.06	ND	ND	ND	ND - 2.30	Discharge from industrial processes, dry cleaners, and automotive repair
Total Trihalomethanes (THMs)	ppb	80	—	ND	ND - 57.3	ND	ND - 9.00	Drinking water chlorination
Microbiological Contaminants[1]				Present	Absent	Present	Absent	Typical Sources
E. Coli Bacteria				2	9	4	164	Human and animal fecal waste
Total Coliform Bacteria				7	4	59	109	Naturally present in the environment

Notes: 1) The table shows the number of domestic wells tested that had bacteria present or absent. Public water systems are required to ensure that fewer than 5% of samples have total coliform present and that no samples have e.coli present. Domestic wells are not subject to these standards.

Terms and Definitions

Color units: A measure of color in water

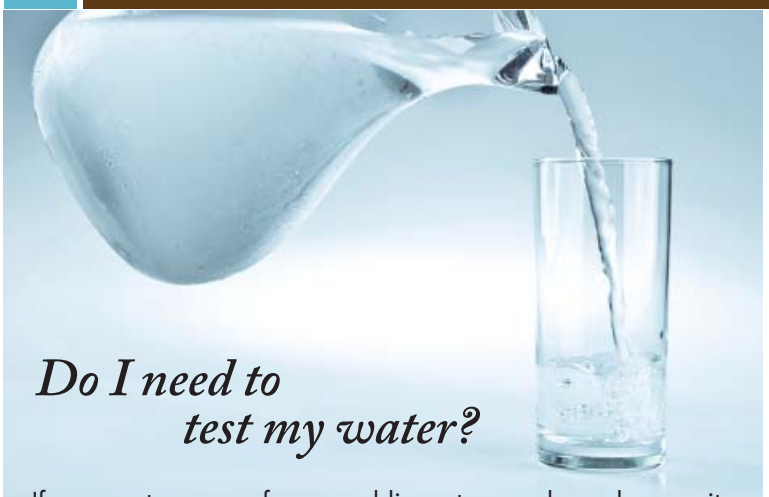
Maximum Contaminant Level (MCL): The highest level of a contaminant allowed in public water systems. Primary MCLs are set as close to PHGs as is economically and technologically feasible. Secondary MCLs protect the odor, taste and appearance of drinking water.

Median: The "middle" value of the results, with half of the values above the median and half of the values below the median.
mrem/yr = millirems per year
MFL: = Million Fibers per Liter
NA: Not analyzed
ND: Not detected (at laboratory testing limit)
NTU: Nephelometric Turbidity Units
pCi/L: picoCuries per liter (a measure of radiation)

ppm: parts per million (milligrams per liter)
ppb: parts per billion (micrograms per liter)
Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to human health. PHGs are set by the California EPA.
TON: Threshold Odor Number
uS/cm: microSiemens per centimeter (a measure of the dissolved inorganic salt content)

2016 Groundwater Quality Summary

Secondary Drinking Water Standards — Aesthetic Standards	UNITS	SECONDARY MCL	PHG	North County MEDIAN	North County RANGE	South County MEDIAN	South County RANGE	Typical Sources
Chloride	ppm	250	—	48.0	27 - 100	45.0	15.0 - 140	Runoff/leaching from natural deposits; seawater influence
Color	color units	15	—	ND	ND - 5.00	ND	ND - 10.0	Naturally-occurring organic materials
Copper	ppb	1,000	300	3.80	ND - 21.5	2.95	ND - 45.4	Internal corrosion of household plumbing systems; erosion of natural deposits
Iron	ppb	300	—	32.8	ND - 2,600	14.4	ND - 620	Leaching from natural deposits; industrial wastes
Manganese	ppb	50	—	0.54	ND - 310	1.30	ND - 455	Leaching from natural deposits; industrial wastes
Odor Threshold	TON	3	—	ND	ND - 2.00	ND	ND	Naturally-occurring organic materials
pH	pH units	6.5 - 8.5	—	7.60	6.31 - 8.20	7.60	7.00 - 8.10	Erosion of natural deposits; carbon dioxide emissions; rainfall
Specific Conductance	uS/cm	900	—	705	440 - 1,360	649	279 - 2,770	Substances that form ions when in water; seawater influence
Sulfate	ppm	250	—	45.0	2.70 - 110	37.1	11.4 - 358	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	ppm	500	—	425	300 - 650	378	262 - 678	Runoff/leaching from natural deposits
Turbidity	NTU	5	—	0.20	ND - 3.00	0.61	ND - 5.10	Soil runoff
Zinc	ppb	5,000	—	ND	ND - 15.7	3.50	ND - 89.0	Runoff/leaching from natural deposits; industrial wastes
Other Water Quality Parameters								
Alkalinity (total, as CaCO3)	ppm	—	—	240	120 - 360	178	90.0 - 343	Atmospheric and vadose zone carbon dioxide
Boron	ppb	—	—	78.5	ND - 441	98.1	66.4 - 1,900	Erosion of natural deposits
Bromide	ppm	—	—	0.15	ND - 0.48	0.17	0.05 - 0.74	Erosion of natural deposits; seawater intrusion; sea spray
Bromodichloromethane (THM)	ppb	—	—	ND	ND - 15.1	ND	ND - 2.10	Drinking water chlorination
Bromoform (THM)	ppb	—	—	ND	ND - 15.7	ND	ND	Drinking water chlorination
Calcium	ppm	—	—	68.0	23.8 - 110	51.0	33.5 - 116	Erosion of natural deposits
Carbon Dioxide	ppb	—	—	15.5	ND - 42,000	NA	NA	Atmospheric sources; dissolution of carbonate rocks
Chlorate	ppb	—	—	220	220	NA	NA	Pyrotechics; leaching from natural deposits
Chloroform (THM)	ppb	—	—	ND	ND - 17.7	ND	ND - 9.30	Drinking water chlorination
Cobalt	ppb	—	—	ND	ND - 0.17	ND	ND	Leaching from natural deposits; industrial wastes
Dibromoacetic Acid	ppb	—	—	1.95	ND - 3.40	NA	NA	Drinking water chlorination
Dibromochloromethane (THM)	ppb	—	—	ND	ND - 25.6	ND	ND - 1.70	Drinking water chlorination
Dichloroacetic Acid	ppb	—	—	3.15	ND - 7.00	NA	NA	Drinking water chlorination
Dichlorodifluoromethane (Freon 12)	ppb	—	—	ND	ND - 6.20	ND	ND	Discharge from industrial processes, dry cleaners, and automotive repair
Hardness (total, as CaCO3)	ppm	—	—	296	170 - 594	261	55.0 - 946	Erosion of natural deposits
Lead	ppb		0.2	ND	ND - 2.04	ND	ND - 2.24	Erosion of natural deposits; internal corrosion of household water plumbing systems; discharges from industrial manufacturers
Lithium	ppb	—	—	7.90	ND - 25.0	10.0	5.80 - 27.0	Erosion of natural deposits; discharge from industrial uses
Magnesium	ppm			28.5	8.20 - 61.0	31.0	20.0 - 57.1	Erosion of natural deposits
Molybdenum	ppb	—	—	1.86	ND - 5.10	ND	ND - 4.40	Erosion of natural deposits
Orthophosphate	ppm	—	—	0.15	ND - 0.47	0.05	ND - 0.85	Leaching from natural deposits; agricultural runoff
Potassium	ppm	—	—	1.26	ND - 2.40	1.30	0.50 - 1.90	Erosion of natural deposits
Radium 228	pCi/L	—	0.019	ND	ND	0.044	ND - 0.047	Erosion of natural deposits
Radium 222	pCi/L	—	—	410	410	NA	NA	Leaching from natural deposits
Silica	ppm	—	—	26.6	24.6 - 35.0	26.3	20.3 - 43.0	Erosion of natural deposits
Sodium	ppm	—	—	31.5	15.1 - 92.0	27.8	13.1 - 110	Erosion of natural deposits
Trichloroacetic Acid	ppb	—	—	1.80	ND - 3.10	NA	NA	Drinking water chlorination
Vanadium	ppb	—	—	1.85	1.50 - 3.00	1.85	1.10 - 13.0	Erosion of natural deposits; discharge from industrial uses



Do I need to test my water?

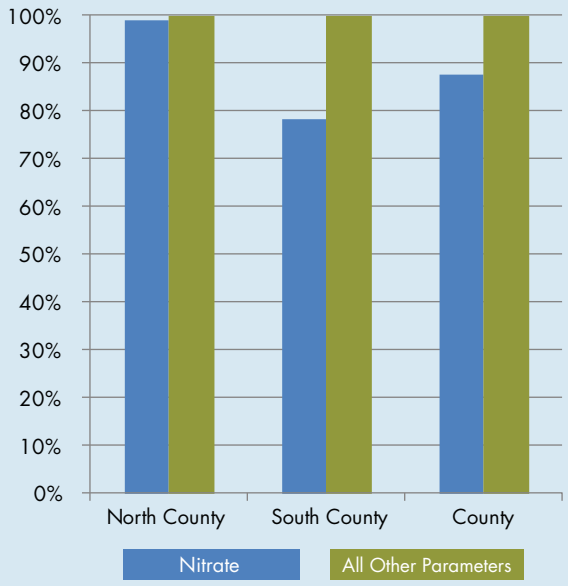
If your water comes from a public water supply, such as a city or water company, it is tested regularly to make sure that it meets state and federal drinking water standards.

If your water comes from a private well, you are responsible for making sure it is safe to drink. Although the water district monitors regional groundwater quality, every property and well has unique conditions. Some contaminants are colorless and odorless, so the first step in protecting your health is having your water tested.

The water district encourages private well owners to have their well water tested by a state-certified laboratory annually or more often if there is a change in taste, odor or appearance. If your water contains any contaminant above drinking water standards, you may want to install a treatment system or use an alternative source of water.

The water district currently offers free basic water quality testing for domestic wells and rebates of up to $500 for nitrate treatment systems — call the Groundwater Hotline at (408) 630-2300 to find out if you're eligible.

PERCENTAGE OF WATER SUPPLY WELLS TESTED IN 2016 MEETING PRIMARY DRINKING WATER STANDARDS



Hot Topics in Water Quality

Nitrate

As shown in the chart to the left, nitrate is an ongoing groundwater protection challenge, particularly in South County. Common sources of nitrate are fertilizers, septic systems and livestock waste, so nitrate is often higher in rural and agricultural areas. Nitrate can interfere with the blood's ability to transport oxygen and is of greatest concern for infants and pregnant women. The effects of consuming high levels of nitrate are often referred to as "blue baby syndrome" and symptoms include shortness of breath and blueness of the skin.

The water district monitors nitrate to assess current conditions and trends, recharges groundwater which helps dilute nitrate, and works with other agencies to address elevated nitrate in groundwater. To help reduce private well owners' exposure to elevated nitrate in drinking water, the water district is offering rebates of up to $500 for eligible treatment systems. Call the Groundwater Hotline at (408) 630-2300 for more information.

Perchlorate

Perchlorate is a salt used for rocket fuel, highway flares, fireworks and other uses. Perchlorate can have adverse health effects at high levels as it can interfere with the thyroid gland, which can affect hormones that regulate metabolism and growth. Contamination from a former highway flare manufacturer in Morgan Hill was first discovered in 2000. At the urging of the water district and the community, the Central Coast Regional Water Quality Board has taken timely action to restore groundwater quality.

Due to cleanup activities and groundwater recharge, perchlorate levels have decreased dramatically. The area affected is also getting smaller, now extending from Tennant Avenue south to approximately San Martin Avenue. A few water supply wells still contain perchlorate above the drinking water standard and remediation by the responsible party is ongoing.

Chromium-6

Chromium-6, a suspected carcinogen, is a naturally—occurring metal that is also used in several industrial processes. Geologic deposits containing chromium-6 are present in areas of Santa Clara County. California's drinking water standard of 10 parts per billion (ppb) for Chromium-6 became effective on July 1, 2014.

Lead

Lead and other metals are naturally present at low levels in groundwater due to the erosion of natural deposits. Groundwater is generally not corrosive by nature. Lead may be introduced to drinking water from faucets, plumbing fixtures and lead solder within the home and from lead service lines, if they are present. For more information, please visit **www.valleywater.org**

You live on a groundwater basin

NORTH COUNTY
Generally extends north from Metcalf Road to San Francisco Bay

SOUTH COUNTY
Extends from the Coyote Valley south to the Pajaro River

Health and education information

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained from the U.S. Environmental Protection Agency's Safe Drinking Water Hotline **(800-426-4791)**, the CA Division of Drinking Water **(www.waterboards.ca.gov/drinking_water/programs)**, the CA Office of Environmental Health Hazard Assessment **(www.oehha.ca.gov/water)**, or from your healthcare provider.

CONTACT US

For more information, contact the water district's Groundwater Hotline at **(408) 630-2300.** Or use our **Access Valley Water** customer request and information system at valleywater.org to find out the latest information on district projects or to submit questions, complaints or compliments directly to a district staff person.

Follow us on: /scvwd /valleywater /valleywater

To get eNews, text **VALLEYWATER** to **22828**.

©2017 Santa Clara Valley Water District •4/17 • PUB 612 MK